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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,936	02/26/2002	James E. Roddy	83618NAB	4071

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EXAMINER

DANIELS, ANTHONY J

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/082,936

Applicant(s)

RODDY ET AL.

Examiner

Anthony J. Daniels

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,4 and 11-21 is/are allowed.
- 6) ☒ Claim(s) 1,2,5-10 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2002 is/are: a) ☒ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. Figure 10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities: On page 1, Line 4, Applicant is required to provide the application number of the cross-referenced application.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,2 are rejected under 35 U.S.C. 102(b) as being anticipated by Tani (US 5,379,069).

As to claim 1, Tani teaches a color imaging device (see Figure 1) comprising an array of light sensitive elements (see Figure 1, CCD "15"; Figure 2B and Figure 3; Col. 4, Lines 38-42): a first type of element sensitive to a blue spectral region (see Figure 3; Col. 5, Lines 45-51); a second type of element sensitive to a red spectral region (see Figure 3; Col. 5, Lines 45-51); a third type of element sensitive to a green spectral region (see Figure 3; Col. 5, Lines 45-51); and a fourth type of element sensitive to a blue-green portion of said spectral region (see Figure 2B; Col. 4, Lines 38-42; *{The examiner is interpreting the blue-green portion of said spectrum as cyan.}*).

As to claim 2, Tani teaches a color imaging device as in claim 1 wherein said light sensitive elements are comprised of a photo sensor (see Figure 1, CCD "15"; *{Photo sensors are inherent features of CCD arrays.}*) and a transmissive color filter (see Figure 1, color filter "52"; Col. 4, Lines 38-42).

4. Claims 5,22 are rejected under 35 U.S.C. 102(e) as being anticipated by Yu et al. (US 6,611,289).

As to claim 5, Yu et al. teaches a color imaging device (see Figure 3) comprising: a first digital camera (see Figure 3, lens "310", sensor "302", control circuit "342", A/D Converter "330"; *{These components together is considered a digital camera.}*)

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comprising a first sensor array (see Figure 3, sensor “302”) and a first color filter for filtering all light except light associated with a first spectral region (see Col. 5, Lines 17-19); a second digital camera (see Figure 3, lens “312”, sensor “304”, control circuit “344”, A/D Converter “332”; *{These components together is considered a digital camera.}*) comprising a second sensor array (see Figure 3, sensor “304”) and a second color filter excluding all light except that associated with a second spectral region (see Col. 5, Lines 20,21); a third digital camera (see Figure 3, lens “314”, sensor “306”, control circuit “346”, A/D Converter “334”; *{These components together is considered a digital camera.}*) comprising a third sensor array (see Figure 3, sensor “306”) and a third color filter for filtering all light except light associated with a third spectral region (see Col. 5, Lines 20,21); and a fourth digital camera (see Figure 3, lens “316”, sensor “308”, control circuit “348”, A/D Converter “336”; *{These components together is considered a digital camera.}*) comprising a fourth sensor array (see Figure 3, sensor “308”) and a fourth color filter for filtering all light except light associated with a fourth spectral region (see Col. 5, Lines 30-33).

As to claim 22, Yu et al. teaches a color imaging device (see Figure 3) comprising: a first sensor array (see Figure 3, sensor “302”) and a first color filter for passing only light associated with a first spectral region (see Col. 5, Lines 17-19); a second sensor array (see Figure 3, sensor “304”) and a second color filter passing only light associated with a second spectral region (see Col. 5, Lines 20,21); a third sensor array (see Figure 3, sensor “306”) and a third color filter for passing only light associated with a third spectral region (see Col. 5, Lines 20,21); a fourth sensor array (see Figure 3,

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sensor “308”) and a fourth color filter for passing only light associated with a fourth spectral region (see Col. 5, Lines 30-33).

5. Claims 6,7 are rejected under 35 U.S.C. 102(b) as being anticipated by Hjortzberg (US 4,404,585).

As to claim 6, Hjortzberg teaches a digital camera (see Figure 1) comprising: a sensor array (see Figure 1, image sensor “14”); a color filter wheel (see Figure 1, four-quadrant color wheel “16”); and wherein said color filter wheel selectively transmits light associated with four spectral regions (see Figure 1; Col. 3, Lines 38-42).

As to claim 7, Hjortzberg teaches a digital camera (see Figure 1) comprising: a sensor array (see Figure 1, image sensor “14”); and an electronically switchable filter capable of selectively transmitting light from four spectral regions (see Figure 1, timer “18”; Col. 3, Lines 55-58).

6. Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated by Morishita et al. (US 4,281,339).

As to claim 8, Morishita et al. teaches a digital camera (see Figure 1) comprising: at least one dichroic beamsplitter (see Figure 1, dichroic mirror “4”, “10”, “15”; *{The half mirror “4” could be considered a dichroic mirror because it selectively reflects light according to its wavelength, wherein the light it reflects is the wavelength of visible light.}*); a first sensor array (see Figure 1, solid-state pickup device “8” which receives light from said dichroic beamsplitter in a first spectral region (see Col. 5, Lines 17-22); a second sensor array (see Figure 1, solid-state pickup device “13”) which receives light

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from said dichroic beamsplitter in a second spectral region (see Col. 5, Lines 25-32); a third sensor array (see Figure 1, solid-state pickup device “18”) which receives light from said dichroic beamsplitter in a third spectral region (see Col. 5, Lines 35-43); and a fourth sensor array (see Figure 1, solid-state pickup device “21”) which receives light from said dichroic beamsplitter in a fourth spectral region (see Col. 5, Lines 44-50).

7. Claim 10 is rejected under 35 U.S.C. 102(e) as being anticipated by Jang (US 6,373,523).

As to claim 10, Jang teaches a digital camera (see Figure 2) comprising: a first photo sensor array (see Figure 1, CCD “30”); a first color filter array comprised of a first and second color filters (see Figure 4A, Magenta and Cyan; Col. 5, Lines 17-19); a second photo sensor array (see Figure 1, CCD “31”); and a second color filter array comprised of third and fourth color filters (see Figure 4B, Green and Yellow; Col. 5, Lines 21-23).

### ***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morishita et al. (see Patent Number above) in view of Neumann (US 5,917,560).

As to claim 9, Morishita et al. teaches a digital camera as in claim 8. The claim differs from Morishita et al. in that it further requires that one of said beamsplitters is an X-Cube beamsplitter.

In the same field of endeavor, Neumann teaches splitting light into the three primary colors of red, blue, and green using an X-Cube beamsplitter (see Col. 2, Lines 46-67, Col. 3, Lines 1-10). In light of the teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ an X-Cube beamsplitter as the at least one dichromic mirrors of Morishita et al., because an artisan of ordinary skill in the art would have recognized that X-Cube beamsplitters provide for a more compact and mechanically stable optical configuration (see Neumann, Col. 1, Lines 65-67).

9. Claims 3,4,11-21 are allowed.

The following is an examiner's statement of reasons for allowance: As to claim 3, the prior art does not teach or fairly suggest a color image sensor with a filter element



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transparent to red, a filter element transparent to green, a filter element transparent to blue, and a filter element transparent to blue-green. As to claim 11, the prior art does not teach or fairly suggest a signal processing unit which calculate a red, green, blue, and blue-green value from signals to said signal processor from a cyan, yellow, and magenta light sensitive elements. As to claim 20, the prior art does not teach or fairly suggest a color imaging device wherein a pattern on the image sensor is:

R G B BG

G R BG B

B BG R G

BG B G R

As to claim 4, claim 4 is allowed as being dependent upon the allowed independent claim 3. As to claims 12-19, claims 12-19 are allowed as being dependent upon the allowed independent claim 11. As to claim 21, claim 21 is allowed as being dependent upon the allowed independent claim 20.

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Daniels whose telephone number is (703) 305-4807. The examiner can normally be reached on 8:00 A.M. - 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Thai Tran can be reached on (703) 305-4725. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AD  
2/2/2005



NGOC-YEN VU  
PRIMARY EXAMINER